Lesson Guide for Sunspot Activity

Materials:

Sun
Sunspotters
4x6 index cards
pencils
Sunspot Observation Graphs
Sufficient copies of Sunspot drawings from Galileo. Use four drawings from consecutive days. Keep a master with the dates, then make copies without the dates for each group of students.
(http://es.rice.edu/ES/humsoc/Galileo/Things/g_sunspots.html)
Daily images of sunspots taken by SOHO spacecraft from the past 5 days
(http://sohowww.nascom.nasa.gov)

Procedure:

1. Assign groups according to the number of sunspotters available to enable participation for all students. Provide each student with a 4x6 card, a pencil, and an observation graph. (It helps if the 4x6 card has a circle pre-printed to represent the sun).

2. Pass out the Galileo drawings with the date erased. Within their assigned groups, have them try to put Galileo's original drawings in order by date. They should have enough background experience to do this by looking at the sunspots and their movement over the four day period. If you were Galileo, what would your predictions be? What reaction did he get from his peers? The public?

3. Use the images taken by the SOHO spacecraft. Identify the sunspots charted for the previous few days. Discuss the differences you see and make predictions for observations you will take during the next few days. Don't forget to relate these observations to the Solar Cycle and predict where you think we are in the cycle now, and what you think the solar activity will be for the next year, increase or decrease? Why?

4. Configure the sunspotters out in an open area of the schoolyard. Assign each of the student groups to one sunspotter. Have each student place their 4x6 card in the sunspotter and draw the sunspots they see. Encourage discussion of other physical characteristics if any. **Always remind the student to never look directly at the sun.**

5. Back in the classroom, distribute the sunspot observation graph and have the students chart their first observation.

6. Encourage small group discussions, especially if one drawing varies from the others.

7. Have one student go to the SOHO website address listed above and check the image for that day. If a printer is available, print a copy and post it in the room for comparison and discussion.

8. Repeat steps 1,4-7 for the next 5 consecutive days, depending on the weather.

9. Encourage large group discussion on the 5^{th} day to analyze final observations and compare charts.

10. Students can create their own “flip” book of index cards to see how the sunspots moved.